

REMARKS

Claims 1,5, and 7 have been amended. No claims have been cancelled and no new claims have been added. Accordingly, claims 1- 9 remain under prosecution in this application.

The Examiner stated the following:

(a) Kambayashi does not teach a transmitter with a coding unit which codes data to be transferred and wherein a polarity of the predetermined polarization of the first transmission being orthogonal to a polarity of the predetermined polarization of the second transmission unit; but

(b) Sibecas teaches a transmitter with a coding unit which codes data to be transferred and wherein a polarity of the predetermined polarization of the first transmission being orthogonal to a polarity of the predetermined polarization of the second transmission unit;

(c) Hottinen teaches the receiver which generates feedback information for the prephasing process in the transmitter and sending the feedback information to the transmitter to perform the prephasing process based on the feedback information sent from the receiver; and

(d) Hanada teaches a communication system wherein each of the first transmission unit and the second transmission unit of the transmitter multiplexes the input signals received and a pilot signal and performs serial-parallel conversion on a signal originating from the multiplexing.

However, the invention uses different polarizations as mentioned above. Then, the inventors proceeded the study to reach a finding that “it is expected to provide the amplification factor with a difference of 5 dB or greater so that the same phase and the same amplification factor hardly occurs” among others, “the invention can make the range in phase control narrower than the prior art”. Then , the inventors added the feature “the range of the phase control (i.e. the maximum difference of the phase difference) in the prephasing process is about 10 degrees” to the requirements of the present invention. When the range of the phase control becomes narrower, the size of feedback information becomes smaller so that the size of the look-up table can be small. This serves to reduce the complexity of the entire communication system and reduce the cost. The use of those schemes can improve the detection performance in the SDM/OFDM system according to the embodiment as compared with the conventional SDM/OFDM system that merely performs

simple phase control.

That is, the present invention uses different polarizations to obtain a sufficient quality of communication even when a small value is used as the range of phase control. On the other hand, by using the range of phase control set as 10 degrees or smaller, the present invention can achieve a small size of feedback information and improve the communication performance. These respects constitute a particular structure, working and effect of the present invention.

In other words, the present invention is not achieved by an obvious combination of the techniques of Kambayashi, Sibecas, Hottinen and Hanada. The present invention aims at improving the performance of the communication system by adding new features. Therefore, the present invention is new and non-obvious.

In view of the above amendment, applicant believes the pending application is in condition for allowance.

Any fee due with the filing of this paper may be charged to our Deposit Account No. 50-3145, under Order No. 215384-106380 from which the undersigned is authorized to draw.

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Respectfully submitted,

By 

Joseph V. Coppola, Sr.

Registration No.: 33,373

HONIGMAN MILLER SCHWARTZ AND
COHN LLP

38500 Woodward Avenue

Suite 100

Bloomfield Hills, Michigan 48304-5048

(248) 566-8500

Attorney/Agent For Applicant